

REMARKS

In the Advisory Action dated August 24, 2005, the Examiner: (i) entered the proposed amendments submitted in the previous amendment dated August 8, 2005; and (ii) stated that the request for reconsideration had been considered, but did place the case in a condition for allowance.

Claims 1-7 and 9-11 remain rejected under 35 USC 102 as anticipated by Lin (US Patent No. 6,483,147) and claims 8 and 15-16 remain rejected under 35 USC 103 as unpatentable over Lin and Mitani (US Publication 2003/0057491). Claims 1, 6-16 and 26 remain at issue.

The Art Rejection

The Applicants are confused by the Examiner's comments. In the Request for Consideration, the Examiner stated:

the arguments filed 8 August 2005 disclose that the Lin reference does not disclose the thermally conductive material to be a thermally conductive paste. This is erroneous since the Lin reference discloses many thermally conductive materials that the heat sink could be and **that does include thermally conductive paste**. Therefore the rejection stands. (emphasis in bold)

In the Remarks of the August 8, 2005 amendment, the Applicant made it clear that Lin fails to teach or suggest using a thermally conductive paste in the plug formed in the bulk silicon layer. On the contrary, Lin teaches the use of a number of metals, alloys, nitrides and suicides thereof, but NOT the use of a thermally conductive paste. The Applicants therefore request that the Examiner either: (i) specifically explain where the alleged use of thermally conductive paste is taught by Lin; or (ii) allow the present application.

For the sake of convenience, the relevant teachings of Lin are provided below. A review of these paragraphs indicate no teaching of the use of a thermally conductive paste by Lin.

In column 3, lines 43-49 Lin teaches:

The conductive plugs contain a conductive material that conducts heat, such as a metallic material. The conductive material includes metallic materials such as conductive metals (heat conductive), conductive metal silicides, and conductive metal nitrides. Conductive materials also include non-conductive materials having a conductive substance dispersed therein so that the combined composite conducts.

In column 3 line 64 through column 4 line 11, Lin defines the materials to use for the conductive plugs as:

Metallic materials include one or more of aluminum, chromium, cobalt, copper, gold, iridium, iron, lead, molybdenum, nickel, niobium, platinum, palladium, scandium, silver, tantalum, tin, titanium, tungsten, zinc, alloys thereof, nitrides thereof, and suicides thereof. At least one of aluminum, chromium, copper, aluminum-copper alloys, platinum, titanium, tungsten, and titanium-tungsten alloys are preferred. In another preferred embodiment, the conductive plugs contain a metal nitride or metal silicide barrier layer and a metal or metal alloy core. For example, the conductive plug may comprise a copper core surrounded by a titanium nitride barrier layer, an aluminum core surrounded by a tantalum barrier layer, and an aluminum-copper alloy core surrounded by a titanium nitride barrier layer.

The Lin reference therefore teaches that the thermally conductive plugs can be formed from a plurality of metals, alloys and/or silicides, or a combination thereof, but NOT thermally conductive paste.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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